

# Better Buildings Residential Network Peer Exchange Call Series

We'll be starting in just a few minutes....

**Tell us...**

**What topics are you interested in for future  
Peer Exchange calls?**

Please send your response to the call  
organizers via the question box.



*Better Buildings Residential Network  
Peer Exchange Call Series*

*It's Not About Energy, It's About Comfort – Addressing  
the Reality*

February 24<sup>th</sup>, 2022

# Agenda and Ground Rules

- Agenda Review and Ground Rules
- Opening Poll
- Residential Network Overview and Upcoming Call Schedule
- Featured Speakers
  - **Charlotte Morrow**, Comfort Ready Home
  - **John Karyczak**, Avangrid
  - **Jonathan Waterworth**, AZ Energy Efficient Home
- Open Discussion
- Closing Poll and Announcements

## Ground Rules:

1. **Sales of services and commercial messages are not appropriate** during Peer Exchange Calls.
2. Calls are a safe place for discussion; **please do not attribute information to individuals** on the call.

*The views expressed by speakers are their own, and do not reflect those of the Dept. of Energy.*

# Better Buildings Residential Network

## Join the Network

### Member Benefits:

- Recognition in media, social media and publications
- Speaking opportunities
- Updates on latest trends
- Voluntary member initiatives
- One-on-One brainstorming conversations

### Commitment:

- Members only need to provide *one number*: their organization's number of residential energy upgrades per year, or equivalent.

### Upcoming Calls (2<sup>nd</sup> & 4<sup>th</sup> Thursdays):

- 3/10: *Are you ready? Preparing Homes for Extreme Weather*
- 3/24: *What Does Electrification at Scale Look Like?*
- 4/14: *Homes and Climate – Connecting the Dots*

Peer Exchange Call summaries are posted on the Better Buildings [website](#) a few weeks after the call

For more information or to join, for no cost, email [bbresidentialnetwork@ee.doe.gov](mailto:bbresidentialnetwork@ee.doe.gov), or go to [energy.gov/eere/bbrn](https://energy.gov/eere/bbrn) & click Join

## What is your organization's experience or familiarity with using comfort as a reason for residential energy upgrades?

- Very experienced/familiar
- Some experience/familiarity
- Limited experience/familiarity
- No experience/familiarity
- Not applicable



**Charlotte Morrow**  
*Comfort Ready Home*



Real Comfort. Real Savings. Real Smart.

**Charlotte Morrow,**  
*Program Manager*

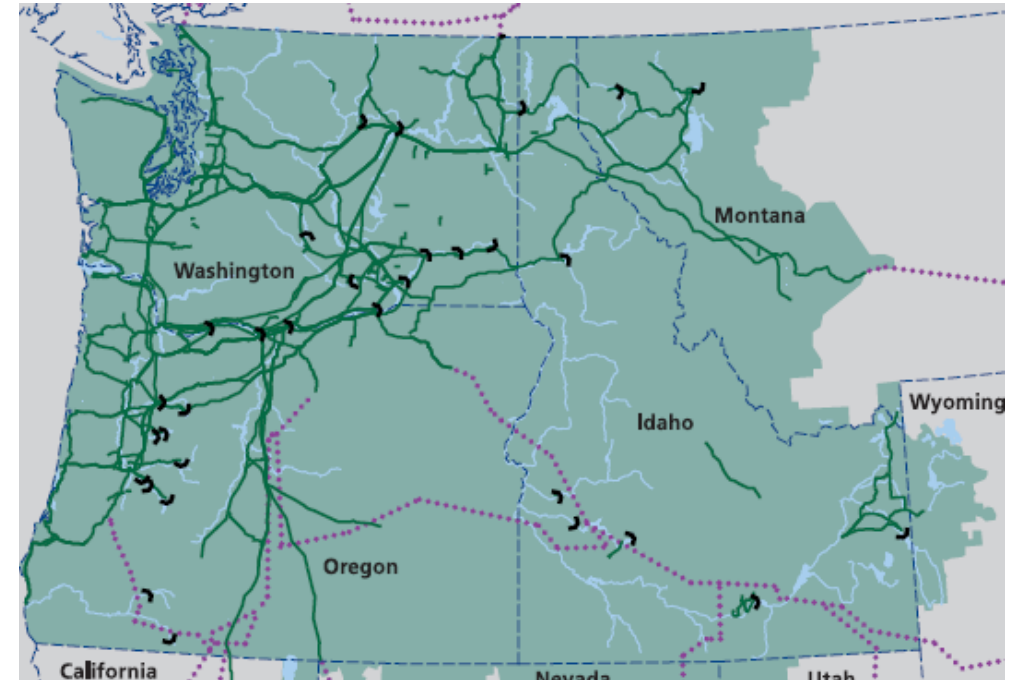
# Connecting Utilities, Contractors and Homeowners

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February 2022

# About BPA

- The Bonneville Power Administration (BPA) is a nonprofit federal power marketing administration, part of the US DOE.
- Provides about **27%** of the electric power in the NW
- Over **140** power customers and over **540** transmission customers
- Operates and maintains about **three-fourths** of the high-voltage transmission in the region.
- Covers: Idaho, Oregon, Washington, western Montana and small parts of eastern Montana, California, Nevada, Utah and Wyoming.





# BPA Hallmark EE Programs





**ComfortReady**  
**HOME**



Homeowners



Contractors



Utilities



# Why Comfort

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**Core  
Values**

# Comfort

Comfort is at the heart of everything we do. We believe a comfortable home is fundamental to success in all areas of life. By helping people take steps to shield their homes from the elements, we enable them to improve their home's comfort and reduce the financial strain of high energy bills. We serve as a trusted resource and provide accurate information for an additional layer of comfort.

# How We Work

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# Indoor Air Quality

## New Indoor Air Quality Videos for Social Media



**ComfortReady HOME**

### Weatherize Your Home to Keep Wildfire Smoke Out

Air-quality emergencies caused by wildfire smoke are becoming increasingly common. One of the best ways to stay safe and comfortable during smoke events is to protect the inside of your home from unhealthy air quality through weatherization.

#### Seal It Tight and Ventilate Right

A weatherization contractor can thoroughly assess your home and seal any leaks, even in hard-to-reach places such as your attic, crawlspace and ductwork. They may also recommend upgrading your furnace to accommodate a more effective filter, or replacing old doors and windows. These preventative measures are the best ways to keep smoke from seeping into your home.

#### When Smoke Is Present

Even if your home is well-sealed and ventilated, taking these extra steps will help keep the air clean when smoke is present.

- Replace or clean your filters more frequently during a smoke event. Temporarily replace your HVAC system's filters with high-efficiency filters, and immediately replace them with standard filters after the smoke is gone.
- If you have an HVAC system, run the fan to continuously filter the air.

#### DIY Weatherization Tips

- Inspect external doors and windows for air leaks. Use caulk and weatherstripping to seal any drafty spots.
- Check for air leaks where plumbing, ducting or wiring come through walls or floors. Seal with caulk or spray foam.
- Replace the filter in your furnace regularly and clean the filters in your ductless heat pump.







# Selling Efficiency



## WEBINAR SERIES SELLING EFFICIENCY

Comfort Ready Home is offering a free webinar series for contractors about how to use proven sales techniques to provide better customer service.



The series will begin with Building Trust and Finding Solutions. Comfort Ready Home Field Specialist Troy Zdzieblowski will lead an interactive presentation about implementing a consultative sales method, personalizing solutions and using a whole-home approach to maximize comfort and value for customers.

The second webinar, Expanding Opportunities, will include sales training from Troy that incorporates best practices and discusses partnering with business allies to cross-sell measures.

Each webinar will be offered as a morning or afternoon session. The sessions will explore real-life scenarios and include Q&A sessions, discussions and giveaways. Troy will also provide information about [joining Comfort Ready Home](#) and taking advantage of its sales and marketing resources for contractors.





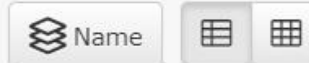




# Homeowner Education



## Course Catalog



CRH / AIA

### Effective Air Sealing Made Simple (CRH-EiQ-200)

1.0 CEUs Effective Air Sealing Made Easy is designed for residential insulation, windows, HVAC or high-efficiency water heating contractors interested in servicing single-family markets seeking to increase prescriptive air sealing sales and/or...



CRH / AIA / Weatherization

### Maximizing Comfort and Durability - Manufactured Home Roof/Ceiling Insulation

(CRH-EiQ-201)

**Please Note:** There are prerequisites to be completed before you can take this course. 1.0 CEUs  
This training is designed for residential insulation, windows, HVAC or high-efficiency water heating

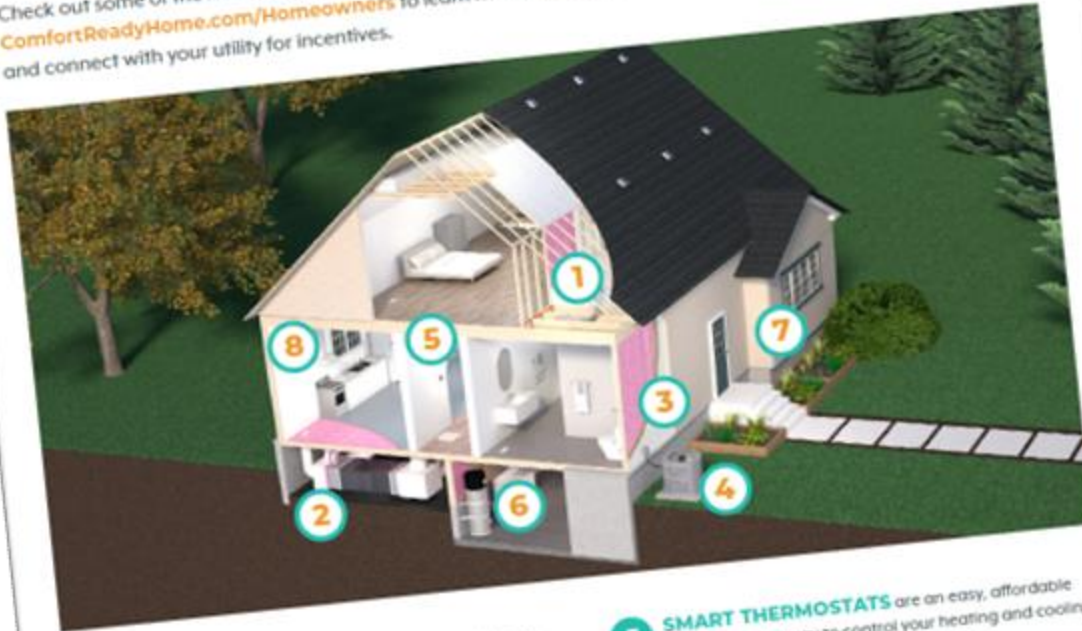


# Homeowner Education

## Home Comfort Upgrades

Energy-efficiency upgrades can make your home more comfortable while lowering your monthly utility bills. There are options for every home and budget, from simple projects to comprehensive whole-home solutions.

Check out some of the most effective energy-efficiency upgrades below, then visit [ComfortReadyHome.com/Homeowners](https://ComfortReadyHome.com/Homeowners) to learn more, find contractors near you and connect with your utility for incentives.



**1 AIR SEALING** blocks uncontrolled air flow into and out of your home, leaving you with a quieter, healthier, more comfortable home.

**5 SMART THERMOSTATS** are an easy, affordable and convenient way to control your heating and cooling.

## Many upgrades pair well and complement each other.

When investing in your home's energy efficiency, it's worth considering which upgrades work well together to maximize comfort while delivering the best value. Ask your contractor about combining different upgrades and check with your utility for available incentives.



### AIR SEALING

**Pairs well with:** Insulation; Duct sealing; Air source heat pumps; Ductless heat pumps; Windows and doors; Ventilation

**Good for:** Indoor Air Quality; Utility Bills; Comfort; Environmental Footprint; Noise Reduction



### DUCT SEALING

**Pairs well with:** Air sealing; Air source heat pumps

**Good for:** Indoor Air Quality; Utility Bills; Comfort; Environmental Footprint; Noise Reduction



### INSULATION

**Pairs well with:** Air sealing; Ventilation; Ductless heat pumps; Air source heat pumps; Windows and doors

**Good for:** Indoor Air Quality; Utility Bills; Comfort; Environmental Footprint; Noise Reduction



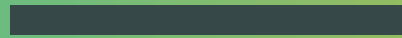
### HEAT PUMPS

**Pairs well with:** Air sealing; Insulation; Duct sealing; Smart thermostats

**Good for:** Utility Bills; Comfort; Environmental Footprint



# Questions?



# Thank You



**Charlotte Morrow** (*she/her*)

**Program Manager**

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**John J. Karyczak**  
*Avangrid*





# Energize CT: Home Energy Solutions

*Better Buildings Residential Network: It's Not About Energy, It's About Comfort – Addressing the Reality*

*John J. Karyczak*

February 24, 2022

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# Agenda

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Energize CT

02

Energy Efficiency

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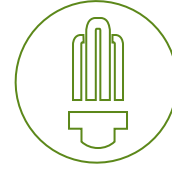
Home Energy  
Solutions

04

Weatherization

05

Realizing Comfort



# Energize CT

## Energy Solutions for Customers

- | Energize Connecticut is implemented by Eversource, Connecticut Natural Gas, Southern Connecticut Gas, and United Illuminating.
- | Energize CT is a partnership of the Connecticut Energy Efficiency Fund, the Connecticut Green Bank, the State, and local electric and gas utilities.
- | In united partnership, the shared mission is to provide Connecticut residents and businesses the resources they need to save energy and use clean energy.
- | The Energize CT initiative empowers communities to make smart energy choices, now and in the future.



# Energy Efficiency Matters

Save Energy, Save Money, Increase Comfort

Energy  
Efficiency **for  
the customer**

## Energy

Reducing consumption should be the first step in efficiency

## Money

Reduced consumption inherently reduces utility costs

## Comfort

When energy is used correctly, comfort ensues

Energy  
Efficiency **for  
the world**

## Sustainability

Reduces air pollutants and greenhouse gases

## Workforce

Sustainability jobs are in high demand and increasingly lucrative

## Community

Benefits are not singular, they are shared

Empowerment to make smart energy choices

# Energy Efficiency in CT

## Why we do what we do

2021 Savings Residential



**Financial Savings**  
 \$32 Million annually  
 \$409 Million lifetime



**Energy Savings**  
 Electric: 85.8 Million kWh  
 Gas: 3.6 Million CCF  
 Oil/Propane: 2.7 Million Gal

2021 Impact Residential



**Project & Rebates**  
 987,877 engaged customers



**CO2 Emissions**  
 81,000 Tons annually  
 1.3 Million lifetime

## 2021 Key Program Benefits

Financial	Every \$1.00 collected, results in an additional <b>\$4.57 of clean energy investment.</b>
Workforce	<b>41,487 jobs in 2021</b> – clean energy investment support Connecticut jobs in HVAC, electrical, manufacturing, insulation, weatherization, and solar industries.
Energy Savings	<b>Energy savings equivalent to a 114 MW power plant.</b> That is enough to power approximately <b>43,138 homes.</b>
Sustainability	<b>\$5.5 Million in public health care costs saved</b> due to lower CO <sub>2</sub> emissions.

- Energy efficiency is the lowest cost energy resource.
- At an average of 4 cents/kWh, it is less expensive to save energy through Connecticut's existing award-winning efficiency programs than it is through any other means.
- Together, we are committed to make Connecticut a better place to live and work.

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# Equating Smart Energy Choices

**Energy efficiency** and **energy conservation** are necessary for **optimal savings**

## Smart Energy Choices

- | The **future of energy** looks smart—literally
- | A world dominated by **smart energy means more savings and lower costs** for customers and decreased environmental impact for the world
- | A **combined effort is the key** to saving money, savings energy, and increasing comfort



## Energy Efficiency

- | **Install equipment and systems** that perform and use less energy
- | LED lighting which uses up to **90% less energy** than an incandescent light bulb

## Energy Conservation

- | Reducing energy use by **changing daily routines**
- | The behavior of turning off a light **when not in a room**

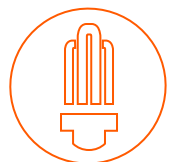


# Home Energy Solutions<sup>SM</sup>

MAKING A HOME ENERGY SMART

A smart energy home is about more than just “energy”. It’s comfort. Convenience. The health of one’s family. A home to value more..

- Home Energy Solutions is an award-winning residential energy efficiency program available to help customers save money and energy while increase comfort in your home.
- An in-depth home performance assessment and service saves the average customer around \$200 each year in energy bills and can reduce their energy costs even further if they take advantage of additional opportunities.
- Home Energy Solutions will make a customer's house, condo, or apartment more comfortable in both the winter AND summer months.



## Increase Efficiency

**In-home assessments**  
On-the-spot improvements



## Optimize Comfort

**Well-being all season**  
Consistent temperatures



## Deeper Savings

**Balanced consumption**  
Manageable utility bills

# Home Energy Solutions<sup>SM</sup>



Home Energy Solutions services are offered at a low \$50 copay. The work completed during the visit would cost an average of \$1,000.

Multifamily units (5+) qualify for the same services as well as comprehensive projects to include deeper measures. Incentives are based on projected energy savings.

Services from utility-approved, certified contractors: BPI, DOE, EPA



In-home weatherization services: air and duct sealing, installing hot water pipe wrap, faucet aerators, and low-flow showerheads



Deeper measure rebates for customers: Insulation, Windows, Appliances, and Heat Pumps



EVERY CUSTOMER PAYS INTO THE ENERGY EFFICIENCY FUND THAT SUPPORT ENERGIZE CT PROGRAMS THROUGH A SMALL CHARGE ON ELECTRIC AND NATURAL GAS BILLS, SO EVERYONE IS URGED TO PARTICIPATE IN SOME WAY.



Blower door-  
guided air sealing

Duct sealing

Home Energy Report &  
Home Energy Score

Water-saving  
measures

Health and safety tests  
on heating  
equipment (e.g., oil boiler,  
gas furnace)

Hot water pipe  
wrap



Reduced costs on  
your energy bills

Less pollen, dust  
and pests entering  
your home

Reduced noise  
from outside

Better humidity  
control, minimizing  
mold and mildew

Access to special  
rebates

Lower chance for ice  
dams on your home's  
roof/eaves

A less drafty, more  
comfortable home year-  
round

# Home Energy Solutions<sup>SM</sup>

The process of making one's home better protected against the effects of uncomfortable outdoor temperatures.



# Health & Wellbeing

GO BEYOND SAVING ENERGY AND MONEY



## SUSTAINABLE HEALTH

Energy efficiency measures can support good physical and mental health

### EMBRACING LIFE

- Creates healthy indoor living environments with healthy air temperatures, humidity levels, noise levels, and improved air quality.
- The World Health Organization estimates that global air pollution causes about 3M premature deaths a year. Energy efficiency measures targeting indoor and outdoor air quality can have major impacts for global health.
- Recent evidence shows that chronic thermal discomfort and fuel poverty also have negative mental health impacts (anxiety, stress, and depression). Energy efficiency improvements can therefore improve mental well-being. Energy efficiency's impact on mental health may be enhanced if combined with financial support mechanisms and strong community engagement.



## QUALITY OF LIFE

Energy efficiency measures can support one's own flourishing

### ENHANCING HEALTH

- The potential benefits of energy efficiency measures include:
  - Improved physical health such as reduced symptoms of respiratory and cardiovascular conditions, rheumatism, arthritis and allergies, as well as fewer injuries.
  - In cold climates, energy efficiency improvements can lower rates of excess winter mortality while in hot climates; they can help reduce the risk of dehydration and negative health impacts.
- Energy efficiency retrofit programs that include installing insulation are shown to enable occupants to set indoor air temperatures to healthy levels.
- Ventilation plays a role in reducing indoor dampness and the associated build-up of mold that exacerbates many health conditions.



# Energize CT

energizect.com

877-947-3873



# John Karyczak

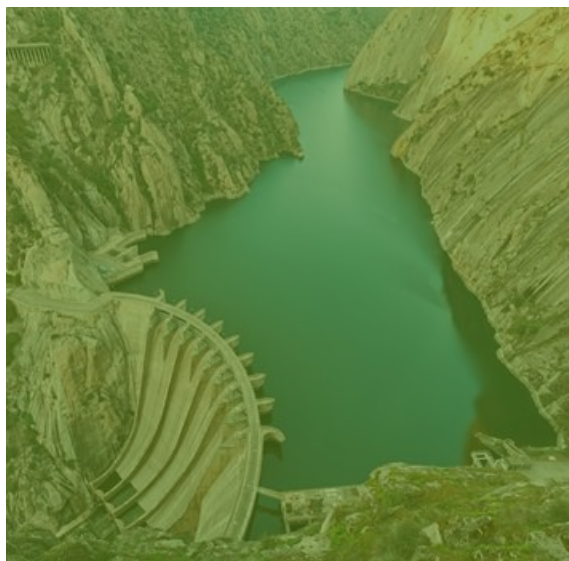
*Home Energy Solutions Program Manager*

jkaryczak@uinet.com

203-710-6377



Part of the AVANGRID Family



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**Thank you!**



**Jonathan Waterworth**  
***AZ Energy Efficient Home***



## Introduction

- ▶ AZ Energy Efficient Home has been recognized as the Home Performance Contractor of the year on a local level as well as the national recognition of ENERGY STAR Contractor of the Year 6x and Sustained Excellence for 4 years in a row by the D.O.E and E.P.A. Owner Jonathan Waterworth is a LEED Accredited and BPI certified professional revolutionizing the home performance industry in Arizona as the nation's top energy efficiency contractor. Utilizing experience, innovation and early adoption of technologies, AZ Energy Efficient Home can make your home healthier, comfortable and efficient.





# **It's Not About Energy, It's About Comfort – Addressing the Reality**

Why is my home uncomfortable?

# Over 90% of incoming calls have comfort as the primary concern

Secondarily to insulation and duct leakage, addressing the following issues will result in a more comfortable environment.

- ▶ Room Pressures
- ▶ Air Barriers – Floor/Attic
- ▶ Capacity Deficiencies in HVAC
- ▶ Poor Duct Design



# Unbalanced Room Pressure

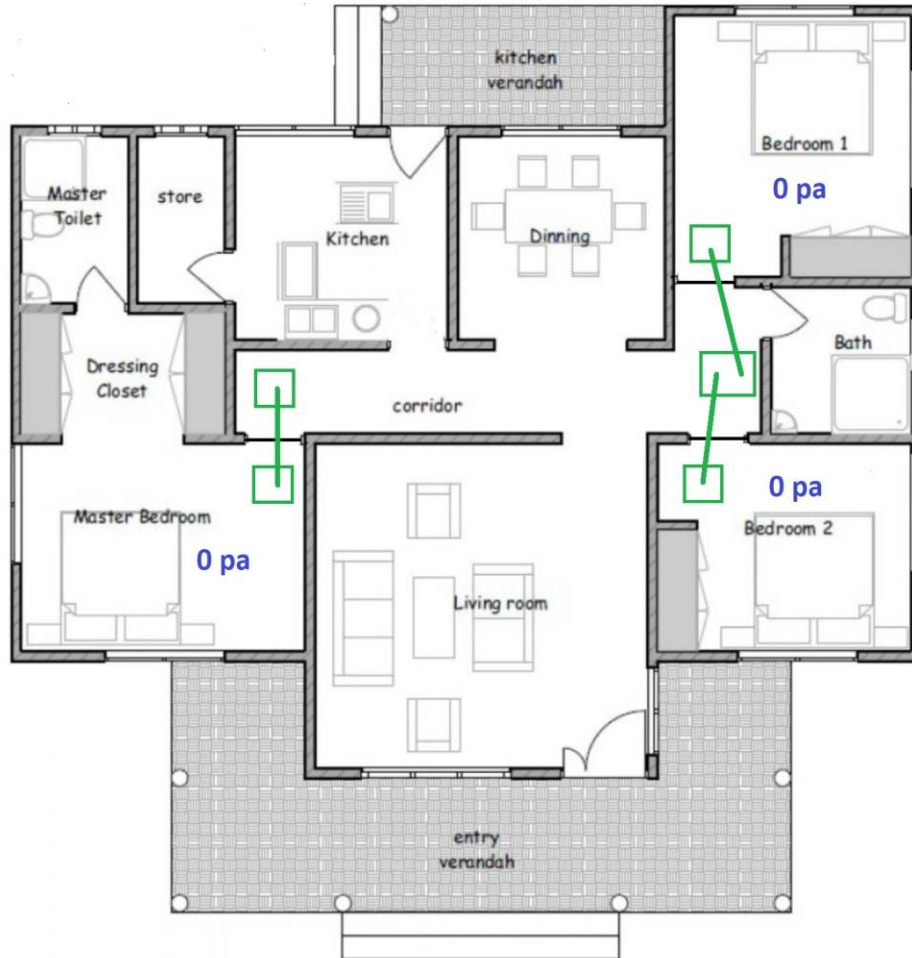


Closed bedroom doors create a positive pressure which prevents new cooling and continuous airflow in and out of the room. This causes surface and air temperature within the room to rise which results in comfort complaints.

# Room Pressure – Not A New Problem

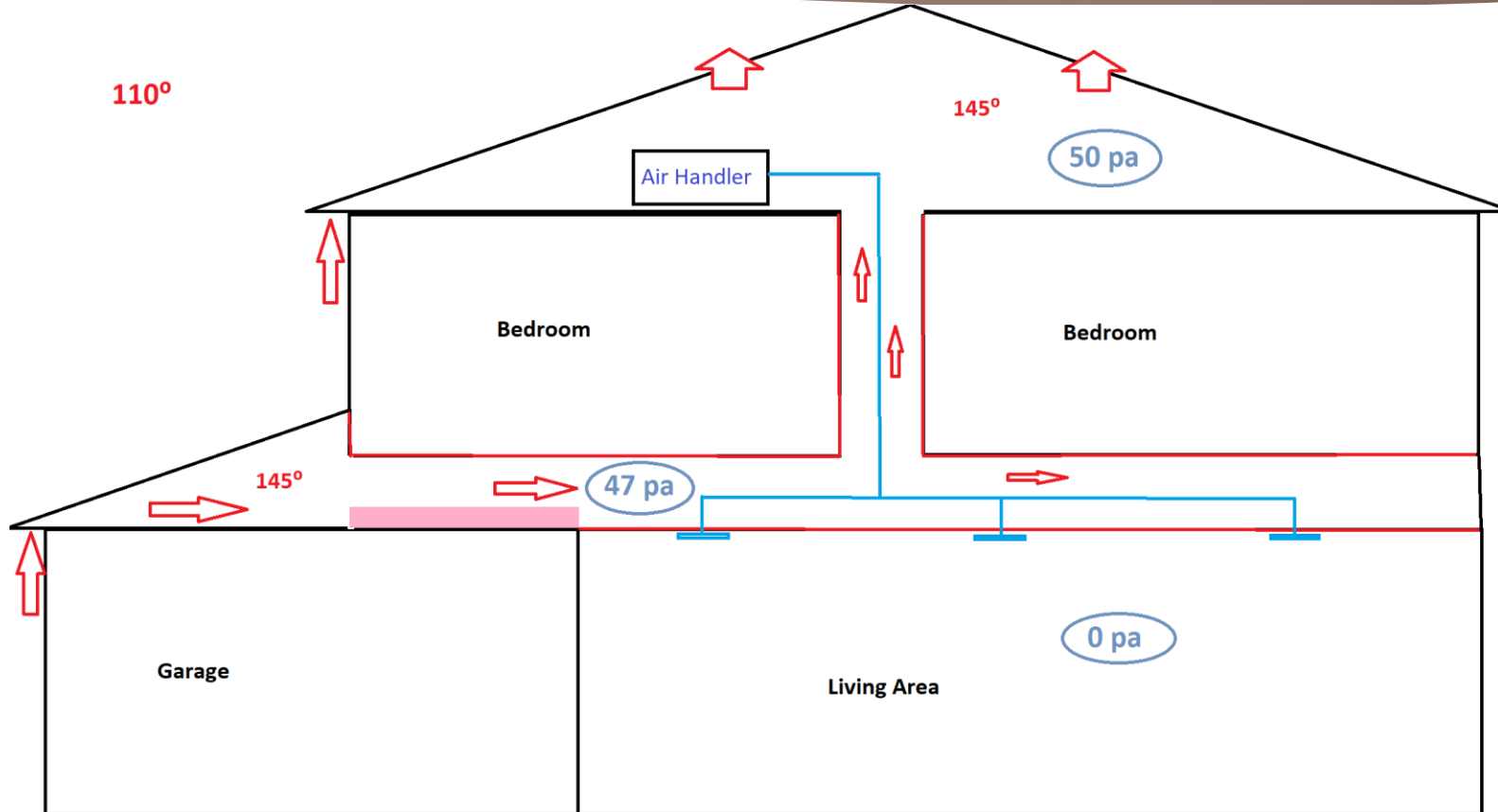


# Balanced Room Pressures



Installing passive returns (jump ducts) between the room and main body allows continuous airflow in and out of the room while doors are closed alleviating comfort issues.

# Identifying Air Barrier Issues



## Visual inspection

- ▶ Drop soffits, arches and columns
- ▶ Two story floor system and vertical chase open to attic

## Pressure boundary mapping

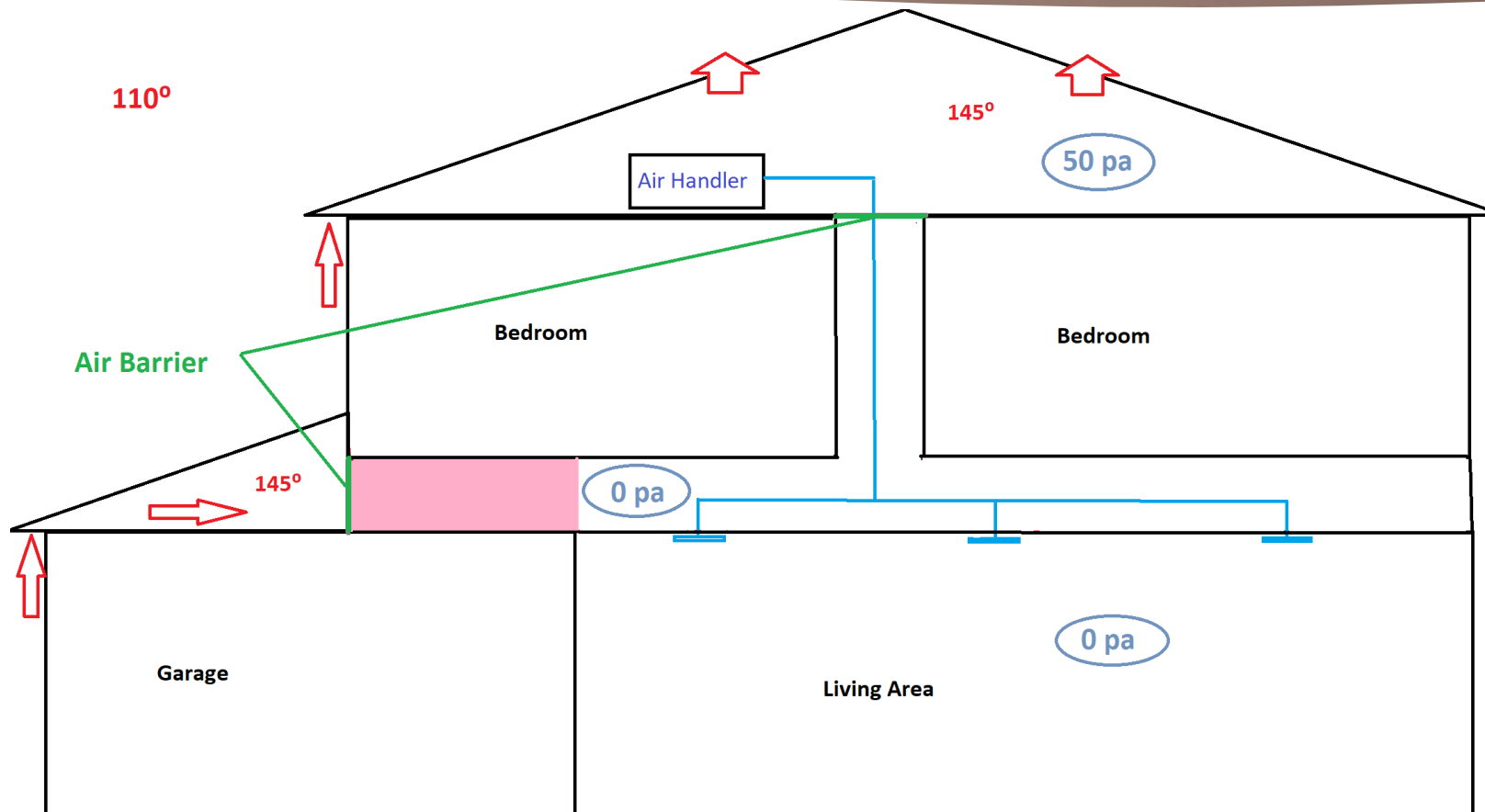
- ▶ Measuring zonal pressures using pressure boundary mapping

# Customer Complaint: Rooms Above Garage are Hot





# Corrected Air Barrier Issues



By installing air barriers, we have brought the floor system and vertical chase inside the pressure boundary. This eliminates hot surfaces such as floors, walls, and ceilings which in turn improves overall comfort.

# Identifying and Improving Poor Design



Good duct design is essential to a properly functioning HVAC system. The lack of contractors utilizing manual J and manual D results in poor designs which create comfort issues for the homeowner. Fortunately, new construction requires manual J and manual D be performed but that still doesn't address existing homes. When manual J and manual D are used correctly, retrofits are sized with the appropriate tonnage and efficient duct design.

# Addressing Capacity Deficiencies

There are numerous issues that can reduce overall air conditioning capacities. While not inclusive, the following are some key examples:

- ▶ Performing insulation R values
- ▶ Duct leakage
- ▶ Envelope leakage
- ▶ Air barriers
- ▶ Static pressures
- ▶ Room pressures
- ▶ Refrigerant charge under/over
- ▶ Quality of installation

The truth is, the vast majority of air conditioning units installed in the Phoenix area today are only operating between 40-65% of their capacity. When the above issues are identified and corrected, the capacity utilization potential can average between 90-100%.

Utilizing capacity is an area the HVAC industry is failing because they don't take the time to identify and remediate the foundational problems. This highlights the importance and value of Home Performance with ENERGYSTAR contractors that can address the above issues as a whole house approach when replacing air conditioning and heating.

# High Efficiency Doesn't Guarantee Comfort

Applying IECC or ENERGY STAR standards doesn't always mean “perfectly sized”.

Issues with comfort in “perfectly sized” AC systems in a cooling climate like AZ, especially when dealing with Time of Use (TOU) rates.

Energy Star Homes in the APS service territory are required to size AC systems according to a manual J calculation. ACCA 9 standards require contractors to input 108°/41° for the Outdoor Design Temps within the software. This creates two comfort issues.

- ▶ Outdoor temperatures are frequently above 108° during summer months. Sometimes for weeks at a time.
  - ▶ In this situation, the AC system is unable to keep up with these loads because of a lack of capacity. The AC system will stay on for the entire afternoon and will have to continue running well after sundown to bring the interior of the home back down to customer set point.
- ▶ Utilities will often encourage “Pre-cooling and/or Drifting across peak periods” for customers on TOU rates.
  - ▶ ENERGY STAR “properly sized equipment” does not have any reserve capacity to effectively pre-cool a home on a hot day to any practical level. And if the homeowner attempts to drift during peak times, they often “lose the house” by allowing the interior temp to climb to a point where the AC system would need up to 24 hours to recover the interior temps to a comfortable level. In other words, these systems lack the capacity to recover after any practical drift time.

Both scenarios can create appreciable comfort issues that ultimately lead to complaints to the AC contractor, builder and utility company.



# Questions?

**Have you encountered these challenges, and does it  
inspire you to change your business model?**

If you wish to continue the conversation or have any additional questions, I can be reached at 623-581-5298 or email [jonathan@azenergyefficienthome.com](mailto:jonathan@azenergyefficienthome.com)



## After today's call, what will you do?

- Consider implementing one or more of the ideas discussed
- Seek out additional information on one or more of the ideas
- Make no changes to your current approach
- Other (please explain)

# Explore the Residential Program Solution Center

Resources to help improve your program and reach energy efficiency targets:

- [Handbooks](#) - explain *why* and *how* to implement specific stages of a program.
- [Quick Answers](#) - provide answers and resources for common questions.
- [Proven Practices](#) posts - include lessons learned, examples, and helpful tips from successful programs.
- [Technology Solutions](#) **NEW!** - present resources on advanced technologies, **HVAC & Heat Pump Water Heaters**, including installation guidance, marketing strategies, & potential savings.



<https://rpssc.energy.gov>

# DOE Health + Home Performance Infographic

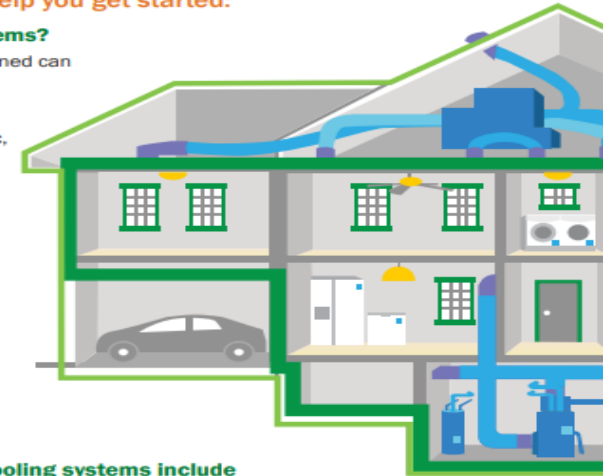
- **WHO**: Res EE programs, partners (contractors+)
- **WHAT**: Visual aid, trusted source
- **WHERE**: IRL or digitally
- **WHY**: Most do not get link btw home, health & efficiency
- **CONTRACTORS**: Find qualified networks

## Do You Have a “Healthy Home?”

A qualified contractor can help you assess and address indoor air quality, improve your comfort, and cut your utility bills.

Answers to a few basic questions can help you get started:

- **How old are your heating and cooling systems?**  
Ensuring your system is updated and well maintained can save money and improve health and comfort.
- **Is your home insulated?**  
Properly installed insulation in your walls and attic, at levels recommended for your home's climate, will cut bills, and improve comfort.
- **Have you ever noticed mold in your home?**  
Visible mold likely means humidity levels need to be better addressed or indicates a potential leak or water damage.
- **Are your windows caulked and doors weather-stripped?**  
These relatively simple fixes reduce air leaks and help maintain indoor temperature levels.
- **Are your appliances ENERGY STAR® rated?**  
ENERGY STAR appliances are energy efficient and help you save money.
- **Do you know if your home's heating and cooling systems include proper levels of ventilation?**  
Effective ventilation is important for both health and safety. Ventilation, along with frequently replaced air filters, can help make sure your home is bringing in fresh air as needed, and keep out pollutants when outdoor air quality is poor due to ozone, fire, or other factors.



### GET started

#### FIND A QUALIFIED CONTRACTOR:

- Home Performance with ENERGY STAR® at [ENERGYSTAR.gov/HomePerformance](https://energystar.gov/HomePerformance)
- Building Performance Institute at [bpi.org/locator-tool](https://bpi.org/locator-tool)

U.S. DEPARTMENT OF  
**ENERGY** | Office of ENERGY EFFICIENCY  
& RENEWABLE ENERGY  
BUILDING TECHNOLOGIES OFFICE

DOE/EE-2349



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Please send any follow-up questions  
or future call topic ideas to:  
[bbresidentialnetwork@ee.doe.gov](mailto:bbresidentialnetwork@ee.doe.gov)